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F. R. CURTISS
COLLAPSIBLE DRINKING CUP

2,645,913

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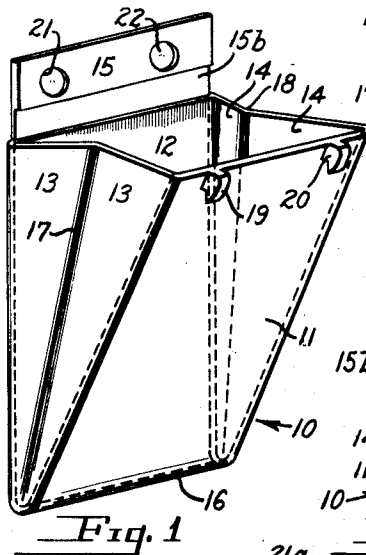


Fig. 1

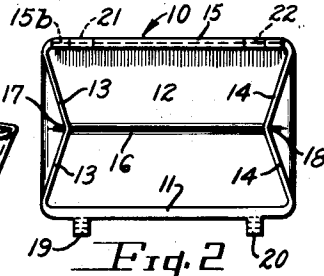


Fig. 2

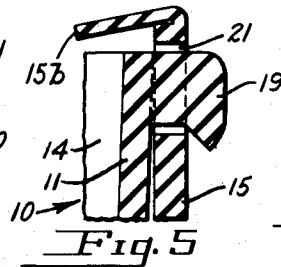


Fig. 5

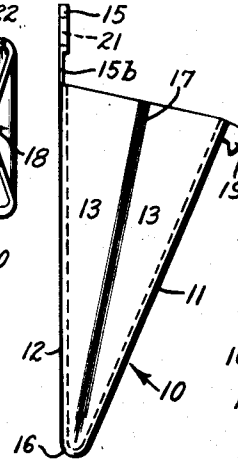


Fig. 3

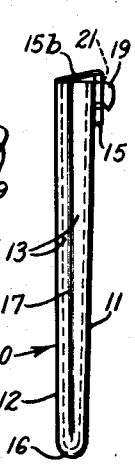


Fig. 4

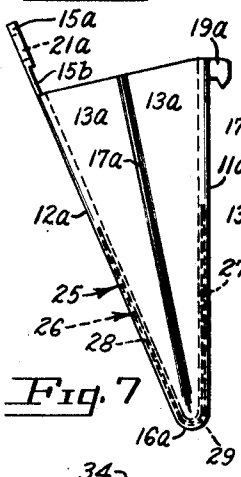


Fig. 7

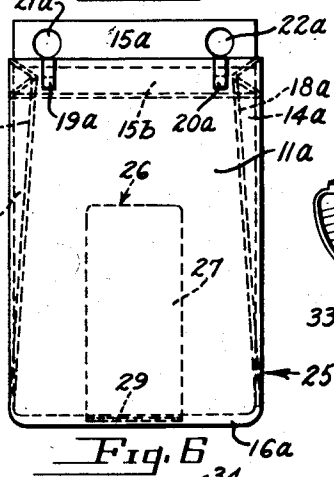


Fig. 6

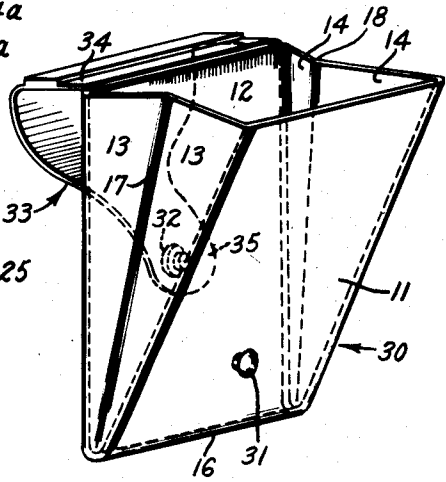


Fig. 8

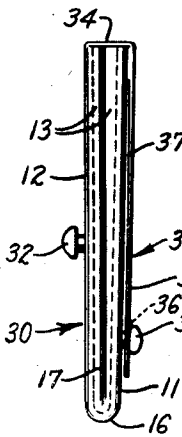


Fig. 9

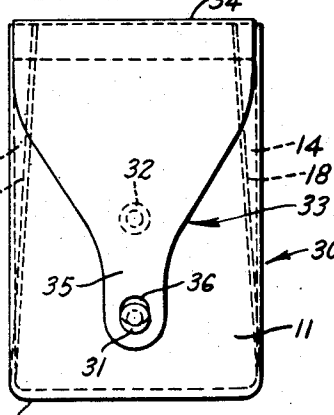


Fig. 10

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COLLAPSIBLE DRINKING CUP

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4 Claims. (Cl. 65-58)

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This invention relates to new and useful improvements in drinking cups and has particular relation to a foldable or collapsible drinking cup especially adapted for use outdoors, as by sportsmen such as hunters.

An object of the invention is to provide a foldable or collapsible drinking cup which is non-metallic and of a material such that it will not rattle or otherwise make sharp or carrying sounds when carried in the pocket of the user.

Another object is to provide a foldable or collapsible drinking cup formed in a single piece, as of a suitable plastic material, and which cup is adapted to be folded into a closed substantially flat package for easy and convenient carrying and which cup constantly tends to open and which will remain in its open condition when being used and not casually collapse or fold in any such manner as might cause accidental spilling of its contents.

Another object is to provide a collapsible or foldable drinking cup of simple and inexpensive construction which can be manufactured at reasonable cost and which will have long useful life.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein satisfactory embodiments of the invention are shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is an isometric view of the cup of the invention, the same being shown open and ready for use;

Fig. 2 is a plan view of the cup of Fig. 1;

Fig. 3 is a side elevational view of the cup when opened;

Fig. 4 is a similar view but showing the cup closed and ready to be disposed in a garment pocket or the like;

Fig. 5 is an enlarged detail sectional view showing the manner in which the cup is held closed or folded or collapsed.

Fig. 6 is a front elevational view showing a slight modification of the cup;

Fig. 7 is a side elevational view of the cup of Fig. 6, the same being shown open;

Fig. 8 is a view similar to Fig. 1 showing a modified structure;

Fig. 9 is a side elevational view of the cup of

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Fig. 8 in folded or collapsed condition but with dotted lines suggesting the position of the closure flap when the latter is used as a handle; and

Fig. 10 is a front elevational view of the modified construction of the cup folded or collapsed.

Referring in detail to the drawing, and at first more particularly to Figs. 1-5, the drinking cup of the invention is generally designated 10 and the same is shown as molded in a single piece from a suitable plastic material. I do not wish to limit the invention to the plastic used, but do wish to point out that the plastic should preferably be odorless and of a nature not to contaminate the water by transferring to the latter any taste or odor.

As shown, the cup includes a front wall 11, a rear wall 12, foldable or collapsible gusset-like side walls 13 and 14 and a closure flap 15. The cup 10 is molded with relatively rigid front and back walls and, as shown, such walls are connected through an integral lower or bight portion 16. These walls are preferably quite stiff and for that purpose they are shown as relatively thick. The side walls or gussets 13 and 14 are, of course, of the same material as that of the front and back walls, but such side walls or gussets are preferably quite flexible and therefore are made thinner than the relatively stiff front and rear walls.

The side walls or gussets 13 and 14 are adapted to fold in their longitudinal medial lines, as along the lines 17 and 18, and as shown such side walls or gussets are more or less wedged-shaped, being reduced in width towards their lower ends where they are rounded in accordance with the shape of the rounded lower bight portion 16.

Molded with or secured to the upper portions of the front wall 11 at a pair of spaced points are hook-like lugs 19 and 20. These are to cooperate with the closure flap 15 when the cup is collapsed or folded. The inner portion 15b of the flap 15 is more pliable or more flexible than are the front and rear walls 11 and 12 and it may be foldable to the same degree as the side walls or gussets 13 and 14. To the desired end, the closure flap 15 is shown as of reduced thickness in its portion 15b wherein it is of less thickness than the front and rear walls. Also, the closure flap is provided with a pair of perforations or openings 21 and 22 for cooperation with the lugs or hooks 19 and 20, as will be set forth.

When the cup of the invention is being made, it is preferably molded in open condition, such as shown in Figs. 1, 2 and 3. Molded plastic material of the flexible resilient type employed herein

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has the characteristic known as plastic "memory," i. e., it will tend to return to its original molded shape following a deformation from said shape, and during such deformation it will be under tension. Thus, the bight portion 16 integrally connected between the walls 11 and 12, as well as the connecting hinge portions integrally connecting the end walls to the front and side walls, and the connecting hinge portion integrally connecting the closure flap to the wall 12, each constitute a flexible resilient hinge normally self-biased open. Then to collapse the cup the walls 11 and 12 are pressed toward one another and the gussets or end walls 13 and 14 are collapsed or folded, as on the lines 17 and 18. These lines vertically bisect such end walls and thus, as the walls 11 and 12 are moved toward one another, by flexing of the material of which the cup is made, the portions of the end walls 13 and 14 at opposite vertical sides of the lines 17 and 18 are folded on one another. These end walls collapse inwardly or into the space between the front and rear walls 11 and 12.

Now the closure flap 15 is folded over so that the hook-like portions 19 and 20 are passed through the perforations or holes 21 and 22 of the flap. This secures the cup in its folded or collapsed condition. Because the cup was molded in open position, its front and rear walls 11 and 12 are constantly tending to move away from one another. This causes a relative movement or tendency toward a relative movement between the flap 15 and the hook-like lugs 19 and 20 so that the edges of the holes 21 and 22 are drawn up against the neck-like portions of the hooks or lugs 19 and 20 and under the heads or hook portions of such lugs. This is as fully illustrated in Fig. 5. With this construction, it will be clear that while the cup is constantly tending to expand or open as to the position of Fig. 1, when the cup has been collapsed and the closure flap is over the hook-like lugs 19 and 20, the closure flap together with said hook-like lugs constitutes means holding the cup in folded or collapsed condition.

With the cup in this condition it is relatively flat, as seen in Fig. 4, and may be conveniently carried in the pocket of a garment. Where the cup is being carried by a hunter, there are no metallic parts to rattle or clink or make other metallic sounds such as would frighten game. The cup being of plastic, it has no tendency to ring even if struck by an object and so is particularly desirable for use by hunters or other outdoorsmen.

When the cup is to be used, it is merely necessary to press the front and rear walls 11 and 12 toward one another to release the tension on the flap 15 whereupon the flap may be released from the hook-like lugs 19 and 20 and the cup will then spring to open position ready for use. It is not necessary to pry open parts of the cup and when the cup is in use, it has no tendency to collapse or fold. Such tendency would have to be constantly watched and guarded against as otherwise the cup's contents would spill. Since the cup constantly tends to move to open position and might be described as having a normally open condition, it is ready for use instantly the flap is detached from the hook-like lugs 19 and 20.

The flap 15 is readily foldable over the upper end of the collapsed cup since the flap in its portion 15b immediately adjacent the body of the cup is formed relatively thin. However, the re-

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maining portion of the flap is shown as relatively thick and, in fact, as thick as or substantially as thick as the front and rear walls 11 and 12. This provides a flap of substantial strength so that the edges of the openings 21 and 22 will not become torn out due to repeated hooking and unhooking over the lugs 19 and 20 and due to the strain imposed on the connection between the lugs and the edges of the openings by the continuous tendency of the front and rear walls 11 and 12 to move apart, as above described.

Figs. 6 and 7 show a slight modification. However, in these figures, the parts are for the most part the same as those previously described and therefore have been given the same reference numbers. In Figs. 6 and 7, the cup is generally designated 25 and in such cup a metal spring 26 has been molded into the cup. This spring comprises a flat piece of stock bent upon itself whereby it includes a front arm 27, a rear arm 28, and a curved connecting portion located in the bight 16a between the front and rear walls of the cup. The spring is molded in place so that its front and rear arms are embedded in the front and rear walls 11a and 12a of the cup 25 and its connecting portion is embedded in the connecting portion or bight 16a of said cup.

With the cup of Figs. 6 and 7, the metal spring 26 will constantly be tending to move the walls 11a and 12a apart so as to open the cup, spreading the end walls or gussets 13a and 14a. When the metal spring 26 is molded into the cup walls, it will be clear that the metal spring is not exposed to the weather and is not exposed to water placed in the cup. Additionally, with this construction, the metal spring may be depended upon to open the cup whenever the closure flap 15 is released from the hook-like lugs 19 and 20. Thus, with the cup of the modification, the plastic material of the cup is not alone depended upon for opening the cup or for maintaining it in its open condition or its condition of use.

Referring now to the construction shown in Figs. 8, 9 and 10, the cup of those figures, generally designated 30, is in its body portion of the construction of the cup previously described and similar portions have been given the same reference numerals. Thus, in the cup 30, front and rear walls 11 and 12 are of relatively stiff, heavy material while the gussets or end walls 13 and 14 are of thinner or lighter construction and of the same material. That is, this cup 30 will be molded of a suitable plastic as described when considering the first figures of the drawing.

The difference between the first described structure and the structure of the modification resides essentially in the construction of the closure flap in such manner that when the cup is in use, this flap may be used as a handle. For water or the like, the handle is probably of no importance, but if the cup is to be used to contain hot coffee or any other hot drink, then the handle permits of manipulation of the cup in comfort and without danger of burning or injuring the hands.

Thus, in the modification, a button or headed stud or hook-like lug 31 is formed on or molded to the front wall 11 of the cup at a considerable distance from the upper edge thereof. A second button or stud 32 is molded with or to the rear wall 12 of the cup and while at a considerable distance from the upper edge of the wall, this second headed stud or hook-like lug 32 is nearer to the mid-portion of said wall than is the stud 31 which is actually toward the lower end of the front wall 11. A closure flap 33 for the cup 30

includes a relatively thin portion 34 integral with the upper edge of the rear wall 12 and then the flap is thickened beyond said portion 34 and then includes a relatively long and relatively narrow extension 35.

The portion 34 of the flap and the thickened portion immediately adjacent thereto is approximately as wide as are the front and rear walls of the cup whereby when the cup is collapsed and the flap is secured in place, the entire upper end of the cup is covered.

When the cup is being carried in the pocket or the like, the flap 33 is in closed position extending across the upper end of the cup and the cup is collapsed with its front and rear walls adjacent and with the end gussets folded between said walls. At this time, an opening 36 in the flap is buttoned or hooked over the headed stud 31 so that the cup is held closed or collapsed in the same manner that the cup 10 is held closed or collapsed when the flap 15 is hooked over the lugs 19 and 20. At this time, the collapsed cup might be carried in the pocket or it may be carried on the belt by slipping the belt through the space designated 37 between the buttoned flap 33 and the front wall of the cup.

When the cup is to be used, the flap is released from the stud 31. Then due to the resilience in the material of the cup and to the manner in which it is conformed and to the thicker, stiffer construction of the front and rear walls, the cup will automatically open as described with reference to the first figures of the drawing. Then as long as the flap is out of the way, the cup may be readily used to hold cool or cold liquids and at such time, the body of the cup may be held in the hand. However, for hot coffee or other hot liquids, it is preferred that the closure be doubled over as in Fig. 8 or as per the dotted lines of Fig. 9 and then the opening 36 in the free end portion of the flap is hooked or buttoned over the stud 32 whereby the closure or flap is in a sort of bowed condition, as suggested in the drawing, and constitutes a handle by means of which the cup may be manipulated.

Aside from the thinned portion 34, the flap 33 is relatively stiff so that the opening 36 will not tear out as the flap is buttoned or hooked or unbuttoned or unhooked at different times from the studs 31 and 32. This construction also helps provide for a relatively stiff handle whereby the cup may be conveniently manipulated by the handle when the flap is fastened over the stud 32.

Having thus set forth the nature of my invention, what I claim is:

1. A collapsible drinking cup comprising a body including front and rear walls connected at their lower ends and end walls connecting and closing the space between the edges of said front and rear walls, said end walls when said cup is open comprising gusset-like members, said end walls foldable upon themselves whereby the front and rear walls may be collapsed toward one another, a closure flap carried by said rear wall and of a length to extend a substantial distance along said front wall when said cup is collapsed, a lug on said front wall in substantially spaced relation to the upper end thereof and over which said flap may be hooked when the cup is collapsed and said flap is substantially parallel with said wall, and a second lug on the rear wall of the cup but spaced above the first lug and over which said flap may be hooked when in a bowed condition whereby to form a handle for said cup.

2. A collapsible drinking cup comprising in-

tegral front and rear walls angularly diverging from their lower ends when the cup is open, substantially wedge-shaped gusset-like end walls integral with the edges of said front and rear walls, each of said walls comprising a single thickness of material and said front and rear walls thicker and stiffer than said end walls, said end walls relatively thin and flexible whereby said front and rear walls normally tend to swing away from one another whereby said cup is normally open and whereby said end walls are foldable inwardly upon themselves substantially along their longitudinal medial lines whereby the front and rear walls may be collapsed toward one another into closely adjacent relation to close the cup, a closure flap comprising an integral extension of the upper end of said rear wall and of a length to extend across the upper end of said cup and a substantial distance along the front wall thereof when said cup is collapsed, means on said front wall in substantially spaced relation to the upper end thereof and adapted to have said flap anchored thereto when the cup is collapsed and the flap is extending along said wall, and a second means on the rear wall of said cup but spaced above the first mentioned means and adapted to have said flap anchored thereto when the flap is bent rearwardly to be disposed at the outer side of the rear wall of the cup whereby to have said flap form a handle for said cup.

3. A one-piece molded-in-open-position collapsible drinking cup of flexible and resilient plastic material of the type having the characteristic of elastic "memory" comprising rectangular front and rear walls connected at their lower ends by an integral hinge connection portion constituting a flexible resilient hinge normally self-biased open, substantially wedge-shaped gusset-like end walls each having an upper free edge and downwardly convergent side edges, said side edges being respectively connected to the side edges of said front and rear walls by integral hinge connection portions, each constituting a flexible resilient hinge normally self-biased open, said end walls each having a fold line medially between its side edges along which the half-portions of said end wall at each side of said fold line are foldable inwardly upon each other as they are folded inwardly upon said front and rear walls through inward movement of the latter toward each other to closed position, both said first and last mentioned connection portions and said fold lines being placed under tension in said closed position and exerting opening pressure on said front, rear and end walls, a closure flap connected to the upper end of one of said front and rear walls by an integral connection constituting a flexible resilient hinge normally self-biased open to raise said closure flap, and anchoring means on the other of said front and rear walls adapted to cooperate with said closure flap when the cup is collapsed and said flap is extending across the upper end of the cup whereby to retain said cup in closed condition.

4. A one-piece molded-in-open-position collapsible drinking cup of flexible and resilient plastic material of the type having the characteristic of elastic "memory" comprising rectangular front and rear walls connected at their lower ends by an integral hinge connection portion constituting a flexible resilient hinge normally self-biased open, substantially wedge-shaped gusset-like end walls each having an upper free edge and downwardly convergent side edges, said side edges being respectively connected to the side

edges of said front and rear walls by integral hinge connection portions, each constituting a flexible resilient hinge normally self-biased open, said end walls each having a fold line medially between its side edges along which the half- portions of said end wall at each side of said fold line are foldable inwardly upon each other as they are folded inwardly upon said front and rear walls through inward movement of the latter toward each other to closed position, both said first and last mentioned connection portions and said fold lines being placed under tension in said closed position and exerting opening pressure on said front, rear and end walls, a closure flap connected to the upper end of one of said front and rear walls by an integral connection constituting a flexible resilient hinge normally self-biased open to raise said closure flap, anchoring means on the other of said front and rear walls adapted to cooperate with said closure flap when the cup is collapsed and said flap is extending across the upper end of the cup whereby to retain said cup in closed condition, said anchoring means comprising downwardly directed hook-like members, and said flap having openings therethrough and through which said hook-like members may pass whereby to secure said cup in closed condition against the tendency of the front and rear walls to move away from one another and against the tendency of said flap to raise.

FRANK R. CURTISS.

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